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## (54) Horseshoe

(57) A horseshoe comprising a base part (1) of plastics or rubber for placing under the bottom of a hoof and whose outer periphery is configurable to conform to the shape of the hoof by removal of material from the base part. The shoe has a plurality of tabs 5, 7, 9, 11 depending from a metallic carrier 2 embedded in the base part. The tabs project from the base part and are compliant and configurable by bending to lie in close conformity with the wall of the hoof. The horseshoe is secured in place by screws cooperating with the tabs and screwed into the side wall of the hoof or the tabs are adhered to the hoof or the horseshoe is held by a strap passing through the tabs.

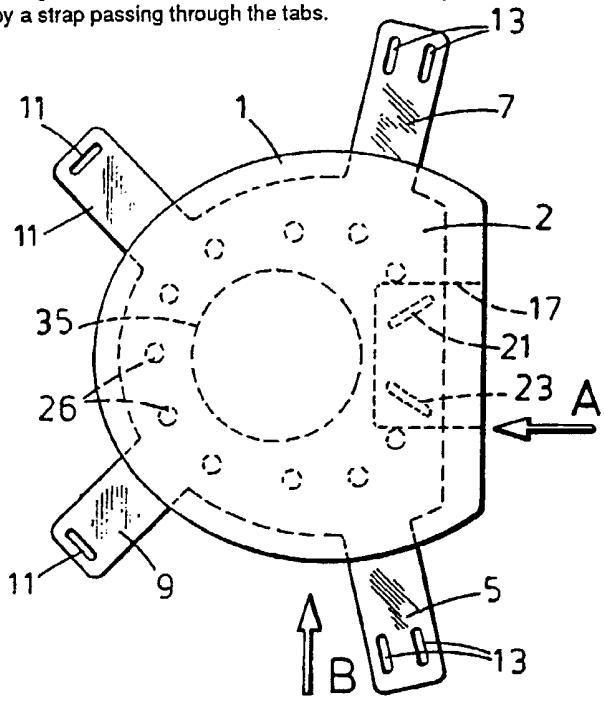


FIG. 1

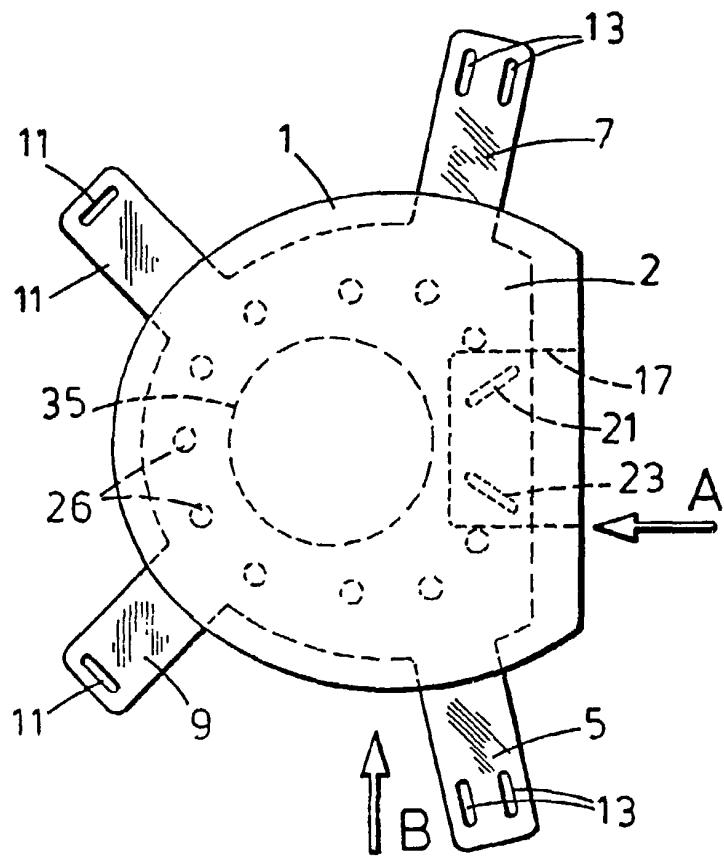


FIG. 1

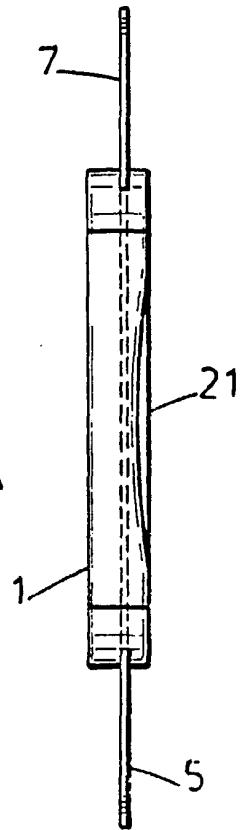


FIG. 2

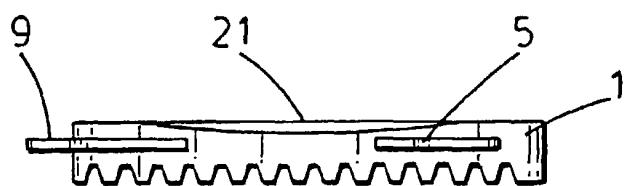


FIG. 3

2/3

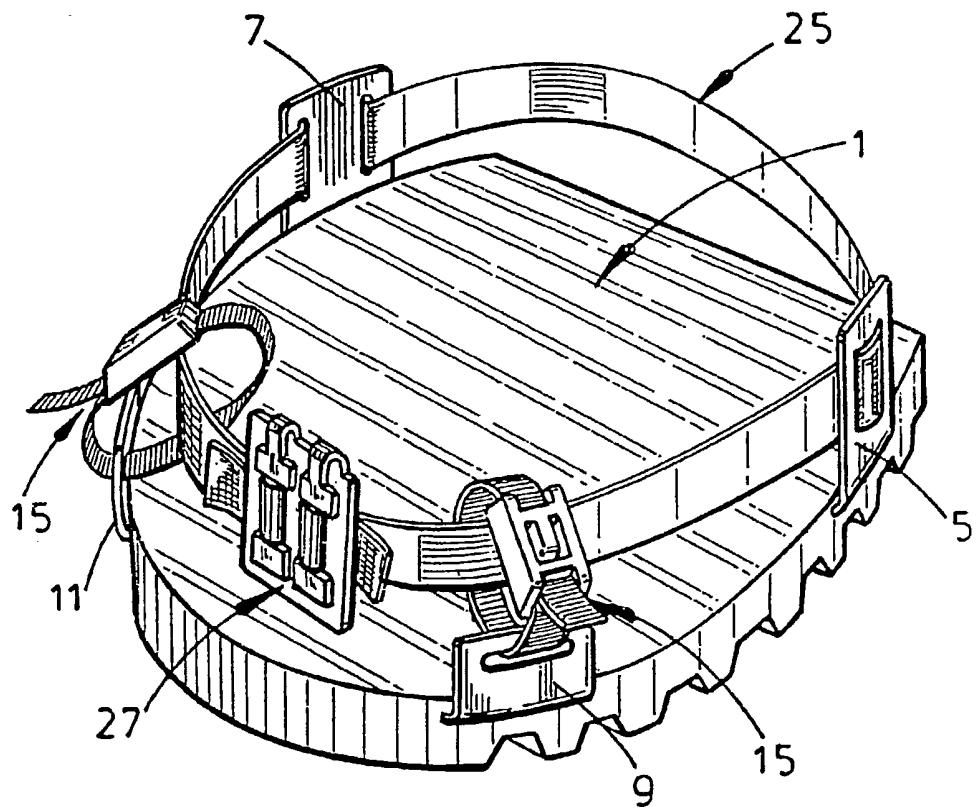


FIG. 4

3 / 3

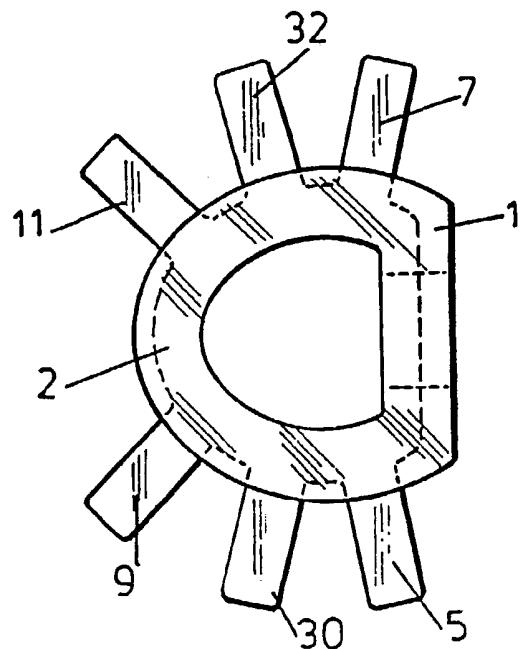


FIG. 5

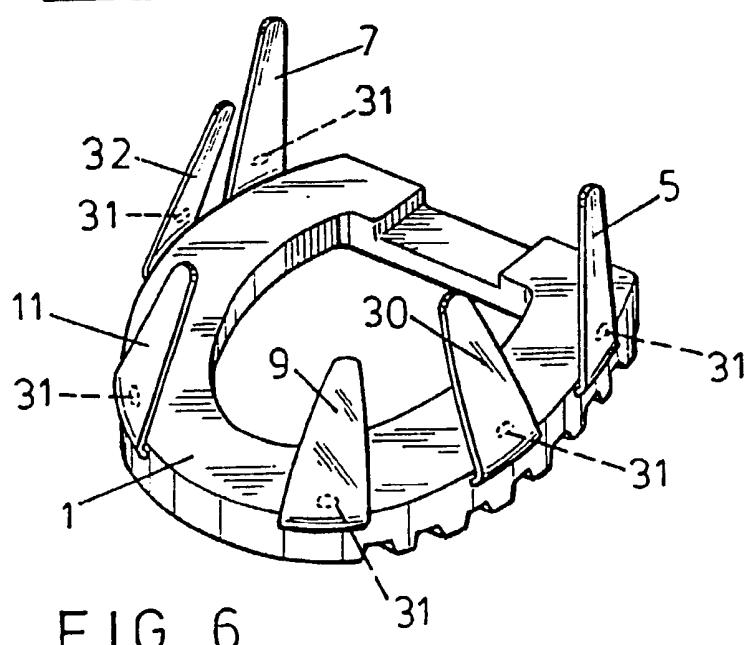


FIG. 6

Title: Horseshoe

DESCRIPTION

The present invention relates to a horseshoe.

Normally horses are fitted with steel shoes  
5 formed to fit accurately in conformity with the edge of  
the foot and nailed into this area which is provided  
with a suitable hoof structure to accept nails. The  
inside of the foot however is concave and has a thin  
wall covering sensitive structures which if damaged can  
10 give serious problems of infection and lameness.  
Problems in shoeing arise when the outside insensitive  
area becomes damaged leaving little to nail onto. In  
the event of infection it is inevitably necessary to  
keep the foot clean and/or to apply a poultice to the  
15 foot although achieving this in practice is particularly  
difficult.

One aim of the present invention is to provide an  
alternative to a nailed shoe such as for temporarily  
fitting to allow a horse to be worked whilst recovering  
20 from the above-mentioned problems and which could even  
provide a temporary replacement for a lost shoe until a  
farrier is available.

There have been numerous attempts to provide such  
temporary shoes or alternative to nailed shoes but in

general these suffer from the disadvantage of requiring the securing means to bear on an area of skin on the horse's leg or on the coronary band which circles the top of the horny part of the hoof which rapidly causes damage. Many also have considerable projections outside the natural boundary of the foot which creates difficulty with retention since the horse's gait brings the feet close together and any such projection can give rise to treading off of the shoe. More importantly however is providing a shoe which closely conforms to the size of the hoof since horse's feet vary widely in size and outline. The best that has been done in most cases is to provide a range of sizes in the hope that one can be selected which is near enough. Bearing in mind the effort which goes into fitting the traditional metal shoe, the importance of a correct fit will be appreciated and any lack of fit seems to exaggerate the difficulty of satisfactorily securing such a temporary shoe to the horse's foot for any length of time in a manner which allows working.

It is an aim of the present invention to overcome the above-mentioned difficulties.

According to the present invention then, a horseshoe comprises a base part of synthetic plastics or rubber for placing under the bottom of the hoof and whose outer periphery is configurable to conform to the

shape of the hoof by removal of material, and a plurality of tabs depending from a metallic carrier contiguous with or substantially enclosed by the synthetic base part and projecting from the base part,  
5 the tabs are compliant and configurable by bending to lie in close conformity with the wall of the hoof and serve for securing the shoe to the hoof.

The tabs may be secured to the hoof by gluing, but in accordance with a preferred aspect of the  
10 invention securing means is employed in the form of screws, eg. self tapping screws cooperating with one or more of the tabs, say through holes in the tabs, and screwed into the side wall of the hoof. Such screws are preferred to gluing but gluing may be used in addition.  
15 The positioning of the screws is best determined by the farrier fitting the shoe who would also determine the position of the hole in the tabs. Such a shoe may serve as a working and/or competition shoe and/or a temporary remedial shoe. The farrier is best placed to determine  
20 the positioning of the screws and appropriate lengths, which will be individual to any particular horse. It is preferred to have at least two tabs positioned to cooperate with a rear part of the hoof, one to each side of its centerline, and to have at least one tab at a  
25 forward position. More preferably there are at least two forwardly positioned tabs one to each side of the

hoof centre line. Intermediate tabs may be provided.

According to another aspect of the invention, strapping acting as securing means cooperates with one or more of the tabs and preferably non-sensitive areas 5 of the foot for holding the horseshoe in place.

In a preferred embodiment the carrier is substantially enclosed by the synthetic base part save for the projecting tabs. The carrier has a generally horseshoe shape, preferably D-shaped. Its periphery 10 save for the tabs, may be cut to conform to the shape of the hoof although generally it will be smaller than the synthetic base part and the hoof. The tabs, indeed the carrier, is conveniently made of sheet metal - typically aluminium or steel. Stainless steel is a currently 15 favoured option. 24 swg sheet is considered suitable, and may be corrugated to increase strength and in a manner to resist spreading of the D-shape under load.

Where the shoe is to be secured by strapping it is preferred to have two tabs to conform to a rear part 20 of the hoof ie. one to each side, and it is preferred to have two spaced tabs to engage towards the front (toe) of the hoof. Preferably each tab is apertured with one or more slots for cooperation with the securing means. Optionally, a part of the carrier beneath the foot 25 towards a rear part is exposed and provided with apertures say as slots, for cooperation with part of the

strapping described further hereinafter. Further intermediate tabs may be provided for example where the shoe is to be secured by screws and/or gluing.

Where the securing means comprises strapping, it is conveniently a high performance tape of synthetic material, say of multi-strand twisted continuous filament type, which is threaded through the aperturing in the front and rear clips passing around the back of the hoof and the ends brought together and secured at the front of the hoof with a suitable fixing means such as a buckle where aperturing is provided in the carrier underneath the foot, the strapping passes through this and out around the rear part of the hoof preferably with a cross-over arrangement. The securing means preferably further comprises adjustable clip means, one for each front toe clip, passing through the aperturing in said clip and cooperating with the strapping whereby the strapping can be pulled towards the clip to give a tensioning effect having regard to the tapered shape of the hoof.

The present invention will now be described further, by way of example only, with reference to the accompanying drawings, in which:-

Figure 1 is an underneath plan view of the horseshoe assembly according to one aspect of the present invention,

Figure 2 is a rear view in the direction of arrow  
A,

Figure 3 is a side view in the direction of arrow  
B,

5 Figure 4 is a perspective view showing the  
horseshoe of Figures 1 to 3 showing the one arrangement  
of the securing means, and

10 Figures 5 and 6 are a plan and perspective view  
respectively of a horseshoe according to another aspect  
of the invention.

Referring to the drawings of Figures 1 to 4, the  
synthetic base part 1 has an outer periphery which is  
generally horseshoe shaped and encloses a carrier 2  
(shown in dotted outline) with a similar horseshoe  
15 shaped periphery. The carrier is made of sheet metal  
which may be aluminium or sheet steel and has four tabs  
extending therefrom and out of the synthetic base part  
to provide two rear tabs 5, 7 and two toe tabs 9, 11.  
The rear tabs each have two parallel spaced slots  
20 through which strapping 25 is threaded for use in  
securing the shoe in place and described further with  
reference to Figure 4. The front toe clips have a  
single slot to receive a respective clip 15 for use in  
securing the shoe in place. Optionally, the synthetic  
25 base part 1 is cut away at 17 in a rear part to reveal a  
part of the carrier which may be provided with two

angled slots 21, 23 which when provided can receive the aforementioned strapping as described further hereinafter. In the illustrated embodiment the carrier is shown having a central aperture 35 although this is optional. The synthetic base part may be provided with a tread as indicated by the alternating projection and recesses shown in Figure 3. A plurality of holes 26 in the carrier provide for keying of the encapsulating base part.

When a horse is to be fitted with the temporary horseshoe an appropriate basic sized shoe is selected and offered up to the horse's hoof and the synthetic base part marked and trimmed to a conforming shape whereupon the toe clips and the rear tabs can be bent up to conform closely with the hoof. Occasionally the carrier periphery may have to be trimmed to suit the hoof. Indeed the hoof in the area of the clips may be relieved slightly to get an even closer fit. A first part of the strapping 25 passes through apertures 21 (where provided) in the carrier plate around the non-sensitive heel part of the foot and through apertures 13 in the rear clips and towards the front of the hoof. A second part of the strapping passes through apertures 23 (where provided) and round the heel part of the hoof and through apertures 13 in tab 7 and, by way of a buckle 27, the two ends are secured at a front part of the

hoof. Where apertures 21, 23 are omitted or where inappropriate for the horse being fitted up with the shoe, the strapping is merely passed between the rear clips round the back of the hoof as illustrated in  
5 Figure 4. Plastic clip parts 28 similar to the one-way ratchet clips for securing cables and the like are passed through the apertures 11 in the toe clips and around the strapping and pulled tight to pull down the strapping and thereby hold the shoe in place having  
10 regard to the wedge shaped configuration of the hoof.

The illustrations show the base part of the shoe having concave surface 21 which avoids contact with the sole part of the foot if the animal is suffering from a dropped sole. Where the base part is solid then any  
15 medications required to the sensitive part of the foot can be accommodated within the space between the base part and the sensitive area of the foot within the hoof although care must be taken not the pack too tightly to put pressure on the sole of the foot.

20 Referring to Figures 5 and 6, here there is illustrated an embodiment of horseshoe according to another aspect of the invention. It comprises the aforementioned rubber or synthetic plastic base part 1 and encasing a modified metallic carrier 2 having  
25 additional tabs 30, 32 disposed intermediate the front and rear tabs 5, 7, 9, 11. As with the above described

embodiment, the periphery of the shoe is trimmed to conform to the shape of the hoof and the tabs bent up to lie in conformity with the hoof. It is proposed to secure the shoe in place by applications of adhesive to 5 the tabs. Alternatively or additionally the aforementioned strapping system may be used by aperturing some or all of the tabs and/or the carrier.

According to a preferred aspect of the invention it is further proposed to provide such as a working 10 and/or competition shoe having a basic configuration corresponding to that illustrated in Figures 5 and 6 and which is secured in place with self tapping screws whose shanks pass through a hole or holes 31 (shown dotted in Figure 6) drilled in some or all of the tabs. This may 15 be as an alternative to or in addition to gluing but it is preferably the sole means of securing. The positioning of the holes will be determined by a trained farrier who will be able to judge the thickness of the hoof wall for a particular horse. Generally, the screw 20 holes will be positioned of the order of 9 to 15mm from the base where the hoof wall is thickest. It is proposed that the holes will be drilled by the farrier as part of the fitting process in preference to supplying the shoe with a series of holes pre-drilled 25 for selection of the appropriate one. The farrier can chose the length of screws in accordance with the chosen

position for the holes in the tabs. Generally speaking the higher the holes up the hoof wall the shorter the screws.

In a preferred embodiment the carrier comprises a sheet of stainless steel, say 24 swg, stamped in a generally D-shape with four or six tabs and encased in a base part of polyurethane, the outer periphery of which is trimmed to the shape of the hoof. In the illustrated embodiment it will be seen that the periphery of the base part extends beyond the periphery of the carrier (save for the projecting tabs) so that generally only the base part needs to be trimmed.

## CLAIMS

1. A horseshoe comprising a base part of plastics or rubber for placing under the bottom of the hoof and whose outer periphery is configurable to conform to the shape of the hoof by removal of material from the base part, and a plurality of tabs depending from a metallic carrier contiguous with or substantially enclosed by the base part and projecting from the base part, the tabs are compliant and configurable by bending to lie in close conformity with the wall of the hoof and serve for securing the shoe to the hoof by means of screws cooperating with the tabs and screwed into the side wall of the hoof.
- 10 2. A horseshoe as claimed in claim 1 in which the carrier is of sheet metal.
- 15 3. A horseshoe as claimed in claim 1 or 2 in which the carrier has a generally D-shape.
4. A horseshoe as claimed in any of claims 1, 2 or 3 in which the carrier is formed with corrugations to increase strength.
- 20 5. A horseshoe as claimed in any one of the preceding claims in which the carrier is 24 swg stainless steel sheet.
6. A horseshoe as claimed in any one of the preceding claims in which the carrier has at least three

tabs.

7. A horseshoe as claimed in any one of the preceding claims in which the carrier has two tabs which are positioned to conform to a rear part of the hoof one to each side of its centre line and at least one tab to conform to a forward part of the hoof.

8. A horseshoe as claimed in claim 7 in which the carrier has two tabs positioned to conform to a forward part of the hoof, one to each side of the centre line.

9. A horseshoe as claimed in any one of the preceding claims in which holes are formed in the tabs to receive self-tapping screws.

10. A horseshoe as claimed in any one of the preceding claims in which the base part is polyurethane material.

11. A horseshoe as claimed in any one of the preceding claims in which the base part has a tread formed on the surface remote from the hoof.

12. A horseshoe constructed and arranged substantially as hereinbefore described with reference to and as illustrated in any one of the accompanying drawings.

13. A method of fitting the horseshoe of claims 1 to 12 comprising trimming the outer periphery of the base part to conform to the hoof, bending up the tabs to conform to the hoof side wall, determining the position

of the fixing screws and forming holes in the tabs to receive fixing screws and securing the horseshoe in place by inserting screws into the hoof side wall.

14. A method as claimed in claim 13 in which  
5 trimming of the base part is performed with a knife or other cutting device.

15. A method of fitting a horseshoe substantially as hereinbefore described with reference to the accompanying drawings.